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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:	**Confirmation No.:** 9730
Peter Phaal	**Group Art Unit:** 2141
Serial No.: 09/850,202	**Examiner:** Lien, Tan
Filed: May 7, 2001	
For: TRAFFIC DRIVEN SCHEDULING OF ACTIVE TESTS	

APPEAL BRIEF-CFR 1.192

ATTN Board of Patent Appeals and Interferences:
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Brief is in furtherance of the Notice of Appeal filed herewith, and contains the following items in the order indicated below as required by C.F.R. §1.192:

I. Real Party in Interest
II. Related Appeals and Interferences
III. Status of Claims
IV. Status of Amendments
V. Summary of Invention
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VII. Grouping of Claims
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I. Real Party in Interest

The real party in interest in this appeal is Inmon Corporation, a corporation organized under the laws of California.

II. Related Appeals and Interferences

There are no appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. Status of Claims

This application includes claims 1-32. Of these, claims 20-25 have been cancelled, leaving claims 1-19 and 26-32 pending. All pending claims stand rejected, leaving no claims allowed. The claims on appeal are claims 1-19 and 26-32.

IV. Status of Amendments

All amendments have been entered.

V. Summary of Invention

The present invention lends itself well to use in a data network wherein it is desired to monitor the active data throughput of the network, e.g., quality of service, such as delay and response time. As explained in the background of the present application, there were previously two ways to monitor the active data throughput of a data network.

The first way of monitoring the active data throughput involves emulating traffic on the network, whereby simulated traffic is sent to and from a remote target host site and measured in order to quantify the data throughput of the network (see page 2, lines

12-22). There are, however, several problems with this approach. First, there are millions of hosts on the Internet, and therefore selecting a set of host sites to test is a difficult problem. Second, during high network loads, the additional traffic imposed on the network for active monitoring can drastically reduce throughput to and from the remote host sites, resulting in inaccuracies in the throughput measurements (see page 2, line 23 to page 3, line 7).

The second way of monitoring the active data throughput is by positioning probes at selected monitoring points along the network and measuring the round-trip delay of the actual data that is transmitted through the network based on time-stamps taken by the probes (see page 3, lines 8-21). Although this approach is less intrusive than the first, it requires the placing of probes at each monitoring site, still requires some additional transmission of monitoring data, and does not take into account time-out delays (see page 3, line 22 to page 4, line 10).

The present invention solves the afore-described problems by emulating traffic on the network in a similar manner as the first active data throughput monitoring method, but basing the emulated traffic on passive measurements taken within the network in order to more focus the transmission of the simulated data to the most pertinent remote host sites. In particular, the passive measurements are obtained by receiving data packet flow records from at least one network router, filtering the flow records, and extracting information of at least one target of interest from the filtered flow records. Active measurements, such as pinging or tracerouting, are then performed on the target(s) of interest based on the extracted information. In this manner, a more

focused and efficient means of measuring the active throughput of a network can be achieved.

Although it should not be limited to the preferred embodiment described in the specification, the invention will now be described in terms of the preferred embodiment in order to aid in further understanding the invention. Fig. 3 illustrates the basic embodiment of a network monitoring system 300, which generally comprises a main server 310, a router 340 coupled between the server 310 and the Internet 350, and a network monitor 330 coupled to the router 340. The monitor 330 filters data packets transmitted between the server 310 and Internet 350 and generates and transmits flow records containing destination and source information of each data packet to the monitor 330. The monitor 330 selects a fraction of the flow records, extracts the destination and source information from the selected flow records. The router 340 than performs active network tests, such as pinging and tracerouting, on remote hosts 340 based on the extracted destination and source information.

VI. <u>Issues</u>

Whether claims 1-19 and 26-32 are unpatentable under 35 U.S.C. §103 as being obvious over U.S. Patent No. 6,308,148 ("Bruins") in view of U.S. Patent No. 6,587,878 ("Merriam")

VII. <u>Grouping of Claims</u>

Claims 1-19 and 26-32 stand and fall together.

VIII. Arguments

Appellant respectfully submits that the Examiner erred in rejecting claims 1-19 and 26-32 under 35 U.S.C. §103 as being obvious over Bruins in view of Merriam, since neither of these references, alone or in combination, disclose, teach or suggest the combination of elements required by these claims.

As made clear by Bruins and Merriam, there are generally two architectures used to measure network traffic: passive and active traffic measurements. Passive traffic measurements have a low impact on a network and are relatively inexpensive to make, but only provide traffic accounting— not quality of service information (delay and response time) (see background of Bruins). Active traffic measurements do provide quality of service information, but are expensive and intrusive (see background of Merriam, and background of specification).

Prior to Appellant's invention, companies tended to focus on one or the other of these measurement strategies—passive measurements for traffic accounting, and active measurements for quality of service monitoring. In contrast to these separate approaches, Appellant has invented a hybrid approach that combines the strengths of these approaches. That is, passive measurements are used to provide an inexpensive overview of traffic on the network and allow high value targets to be automatically selected, so that the maximum benefit (in terms of profiling the performance that most active users see) is derived for the smallest number of active tests. Additionally, the cost/time typically involved in configuring an active monitoring system is significantly reduced, since the targets are now automatically selected.

Despite the Examiner's latest clarification of the suggestion to combine the teachings of Bruins and Merriam in the Final Office Action, dated January 10, 2005, Appellant respectfully submits that such combination is still improper. In particular, in attempting to link the two references, the Examiner has pointed to basic commonalities between the references that can be found in any network where it is desirable to perform traffic measurements. However, more than that is required to combine the teachings of the references.

For example, the Examiner points to the statement in the Abstract of Bruins that the system disclosed therein can be used to adjust features or parameters of the network (see Final Office Action, page 3, lines 11-13). Appellant does not disagree that one of the purposes of both systems described in Bruins and Merriam is to adjust the features or parameters of the network—indeed, it is the reason why networks are tested, either through passive measurements or active measurements. Appellant, however, does not agree that a terse statement merely stating that passive measurements can be used to improve the features or parameters of a network somehow suggests to one of ordinary skill in the art that active measurements of a target of interest can be performed based on packet information extracted from passive measurements. Again, it only states the obvious—that it is desirable to improve the operation of networks—and suggests nothing else. Appellant would venture to say that if a suggestion to combine references could be based on a general statement that it would be nice to improve the features and parameters of a system, then otherwise valid innovations on data networks, or any other system for that matter, could not be

patented, since it is always desirable to improve the features and parameters of a network or system.

At most, this statement suggests that the features and parameters of a network, such as that disclosed in Bruins, can be improved by performing active measurements. The question remains, how? The only answer found in these references is by performing the active measurements in the exact same manner described in Merriam. There is no suggestion that the passive and active measurement aspects of the systems of Bruins and Merriam be combined, and certainly no suggestion to combine these aspects in the manner required by the claimed invention. At most, there is only a suggestion that passive and active measurements can be performed independently of each other to perform different traffic measurements to improve different parameters and features of a network.

As another example, the Examiner states that Bruins collects flow data related to web and http services, and Merriam performs active tests on network devices hosting web and http services (see Final Office Action, page 8, lines 6-16). Again, these are common attributes that are addressed by any traffic measurement system, and is a far cry from suggesting to one of ordinary skill in the art that active measurements of a target of interest can be performed based on packet information extracted from passive measurements. Again, at most, Bruins and Merriam suggest that the hosting web and http services disclosed in Bruins can be improved by performing active measurements, but does not suggest how such improvements would be made other than performing the active measurements in the exact same manner described in Merriam—not in the manner required by the claimed invention.

Thus, rather than pointing to passages in these references that truly suggest that the Bruins system should be modified to include an active measurement system that uses the passive measurements to focus the active measurements on targets—or at the least, passages that suggest combining the aspects of active and passive measurement systems in any integrated manner, the Examiner points to obvious features common to all data networks (i.e., that it would be desirable to improve the network parameters and features or to improve website and http services) in an attempt to link the two references in the manner taught by the application.

Appellant reiterates that a suggestion to combine the references in the manner set forth by the Examiner can only come from the detailed description of the instant specification, which the Examiner cannot use. Instead of looking to the prior art and working forwards from there in attempting to determine whether the combination of Bruins and Merriam is proper, the Examiner has improperly worked backwards from the claims. For example, the prior art problem addressed by Appellant was the increased expense and intrusiveness of active measurement systems. This problem is certainly not addressed by Bruins, which discloses a passive measurement system for improving the features and parameters of a network as all passive measurement systems ultimately do, and is not addressed anywhere in Merriam, which attempts to more accurately determine delays in a network. In contrast, Appellant has addressed this problem by focusing the active measurements on the targets where network traffic is most likely to be found. Appellant has specifically accomplished this by passively measuring network traffic to determine the most likely targets. This, the Examiner cannot use in the obviousness analysis.

Appellant is aware that a suggestion to combine references need not relate to the same problem addressed by an Appellant, but can also relate to problems addressed by the prior art as well. However, there is no suggestion to combine the references to solve the problems disclosed therein either. Being that the teachings of Merriam are being used by the Examiner to modify the system of Bruins, the problem solved by Merriam would be relevant. In particular, as previously stated, Merriam is concerned with a means for more accurately quantifying the delays in a network, supposedly so that the network can be improved. The most that this suggests is that an active measurement means can be incorporated into the Bruins system to address this problem. Thus, not only does Bruins and Merriam fail to suggest the claimed invention for the purpose of focusing active measurements on targets to decrease the expense and intrusiveness of the system, Bruins and Merriam fail to suggest the claimed invention for any other purpose.

In the Advisory Action, dated March 29, 2005, the Examiner stated he "is not just stating that the suggestion or motivation to combine is to improve the efficiency of the network, but the Examiner also pointed out that the suggestion or motivation to combine Bruins' method of extracting packet information from the filtered flow records with Marriam's performance measurement program to measure actual performance data extracted from the filter is in the Abstract of Bruins." However, the Examiner pointed to no suggestion other than that one of ordinary skill in the art would be motivated based on the statement by Bruins that it is desirable to improve the efficiency of the network. The Examiner appears to conclude that the teaching of "Bruins' method of extracting packet information from the filtered flow records with Marriam's

performance measurement program" is some sort of suggestion in itself. However, this is not a suggestion, but rather an improper conclusion based on the mere suggestion that it is desirable to improve the efficiency of the network. That is, if a first prior art reference teaches the elements A, B, and C, and a second prior art reference teaches element D, there must be some suggestion in the prior art to make the combination ABCD. However, none of the elements A, B, C, or D is a suggestion itself.

In the Advisory Action, the Examiner further stated that "[a]fter reading [Bruins], one of ordinary skill in the art would recognize that when adjusting the network performance parameters of the network, one would try to improve its efficiency in terms of performance, and not try to degrade its performance nor adjusting the performance parameters just for the sake of adjusting." Appellant does not disagree. However, the notoriously well-known fact that one would want to improve the efficiency of a network and not degrade it is insufficient to make the prior art combination made by the Examiner, as discussed above.

The Examiner further states in the Advisory Action that he "is not just merely stating the obvious suggestion or motivation to combine, but also pointed out in the prior art which emphatically and clearly states it." Appellant does not disagree that the prior art emphatically states that one would want to improve the performance of a network. Appellant's point is that the Examiner's statement that it is desirable to improve the efficiency of networks states the obvious—not that it is obvious (clearly, it is true), and that such a finding cannot be used as a panacea for combining references each time such combination results in a more efficient system.

Thus, Appellant respectfully believes that independent claims 1-19 and 26-32 are patentable over the combination of Bruins and Marriam.

Respectfully submitted,
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Dated: April 26, 2005

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IX. Appendix of Claims Involved in the Appeal

1. A method for monitoring a network, comprising:

receiving data packet flow records from at least one network router;

filtering said flow records;

extracting packet information from said filtered flow records, wherein said extracted packet information comprises information of at least one target of interest; and

performing active measurements of said at least one target of interest based on said extracted packet information.

2. The method according to claim 1, said filtering comprising selecting flow records based on packet routing information in said received flow records.

3. The method according to claim 2, said filtering comprising selecting flow records having non-local destination or source addresses.

4. The method according to claim 2, said filtering comprising selecting flow records having local destination or source addresses.

5. The method according to claim 2, said filtering comprising selecting flow records having destination or source addresses associated with performing critical services.

6. The method according to claim 1, said filtering comprising randomly selecting flow records from said received flow records.

7. The method according to claim 1, wherein said performance of active measurements comprises a ping process.

8. The method according to claim 1, wherein said performance of active measurements comprises a traceroute process.

9. The method according to claim 1, further comprising selecting the nature of said active measurements based on said at least one target of interest.

10. A network monitoring apparatus, comprising:

a monitor configured for receiving data packet flow records from at least one network router, for filtering said flow records, for extracting packet information from said filtered flow records, said extracted packet information comprising information of at least one target of interest, and for performing active measurements of said target of interest based on said extracted packet information.

11. The apparatus according to claim 10, wherein said monitor is configured to filter said flow records based on packet routing information in said flow records.

12. The apparatus according to claim 11, wherein said monitor is configured for selecting flow records having non-local destination or source addresses.

13. The apparatus according to claim 11, wherein said monitor is configured for selecting flow records having local destination or source addresses.

14. The apparatus according to claim 11, wherein said monitor is configured for selecting flow records having destination or source addresses associated with performing critical services.

15. The apparatus according to claim 10, wherein said monitor is configured for randomly selecting flow records from said received flow records.

16. The apparatus according to claim 10, wherein said performance of active measurements comprises a ping process

17. The apparatus according to claim 10, wherein said performance of active measurements comprises a traceroute process.

18. The apparatus according to claim 10, wherein said monitor is configured for selecting the nature of said active measurements based on said at least one target of interest.

19. A method for monitoring a network, comprising:

receiving data packet flow records from at least one network router;

extracting packet information from at least a fraction of said received flow records, wherein said extracted packet information comprises information of at least one target of interest; and

performing active measurements of said at least one target of interest based on said extracted packet information.

26. The method according to claim 19, wherein said performance of active measurements comprises a ping process.

27. The method according to claim 19, wherein said performance of active measurements comprises a traceroute process.

28. A network monitoring apparatus, comprising a monitor configured for performing the method of claim 19.

29. The method of claim 1, further comprising:

routing said data packets through said at least one router; and

generating said data packet flow records.

30. The apparatus of claim 10, further comprising said at least one router configured for routing said data packets and generating said data packet flow records.

31. The method of claim 19, further comprising:

routing said data packets through said at least one router; and

generating said data packet flow records.

32. The apparatus of claim 28, further comprising said at least one router configured for routing said data packets and generating said data packet flow records.